

PATENT ABSTRACTS OF JAPAN

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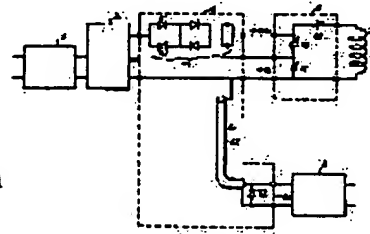
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(54) NUCLEAR QUADRUPOLE RESONANCE APPARATUS

(57)Abstract:

PURPOSE: To enable execution of a switching operation at a time point when a residual voltage due to an NQR excitation pulse is attenuated to $1/n$ of the one according to a usual method, in a switching circuit for cutting off a high-frequency pulse amplifier from a high-frequency coil and a measuring circuit after completion of the excitation pulse and connecting a low-noise amplifier to the high-frequency coil.

CONSTITUTION: In regard to an impedance matching circuit of a high-frequency coil, the circuit is so constructed that a high-frequency pulse input circuit has a value larger (in n times) than an output impedance of an NQR signal measuring circuit, and a high-frequency amplifier and a diode for switching it are connected to the aforesaid circuit. Since the high-frequency amplifier is cut off at a time point when a residual voltage due to a pulse for NQR excitation becomes $1/n$ of the one according to a prior art, a time for attenuation of the residual voltage is shortened, while the residual voltage contained in an input signal to a low-noise amplifier can be reduced to $1/n$.



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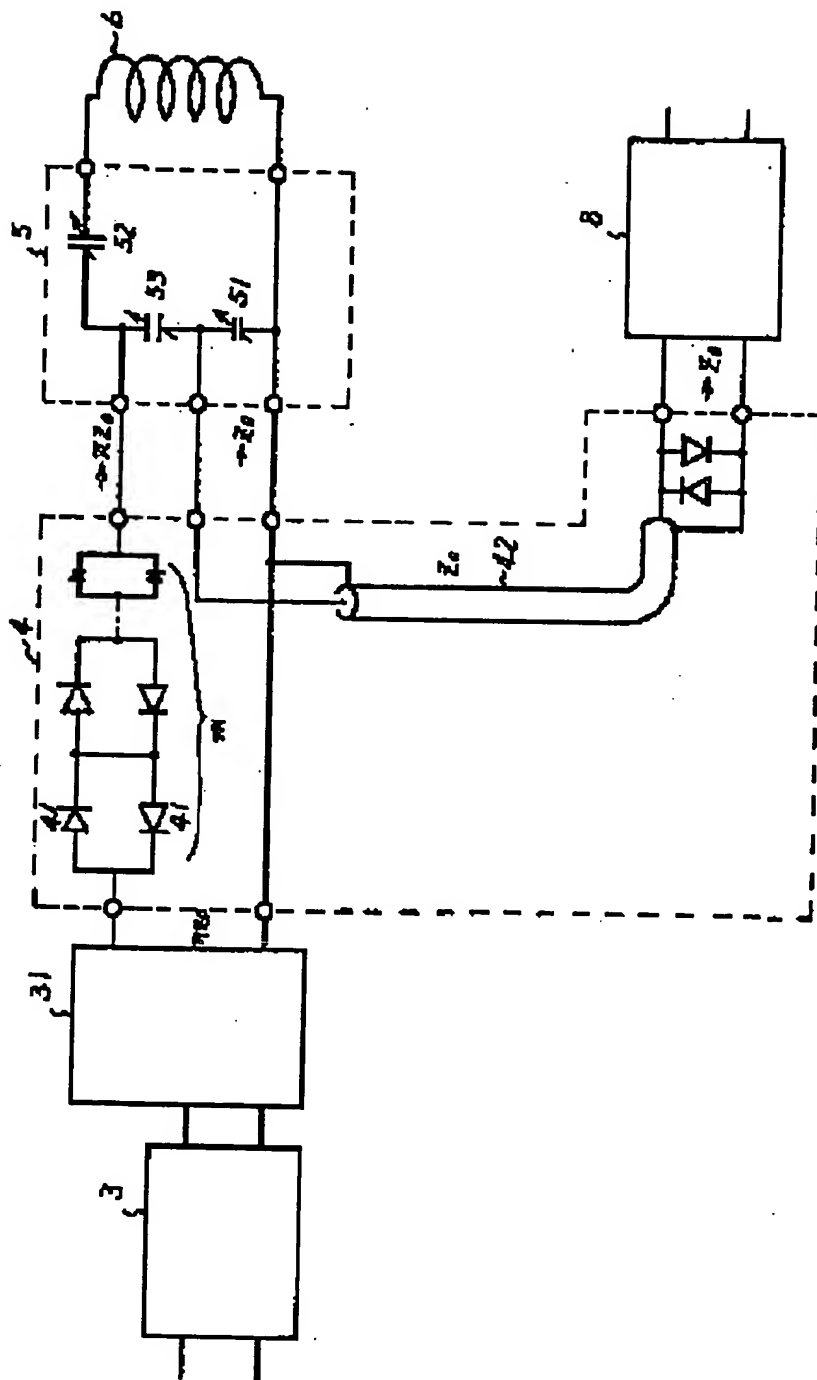
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Nuclear quadrupole resonance device for narcotics detection - has switching circuit which switches off input/output of high frequency coil, when residual voltage is attenuated to $1/n$ value by excitation pulse

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The NQR device has a switching circuit (4) which connects a high frequency coil (6) with a pulse amplifier (3) and a low noise amplifier (8). The output impedance of the pulse input circuit is higher than the output impedance of the NQR signal measurement circuit.

The switching circuit has a number of diodes arranged between the tuning circuit (5) and the pulse amplifier. When the residual voltage of excitation pulse attenuates to $1/n$ th of it, the switching circuit switches off the input/output high frequency coil.

ADVANTAGE - Shortens decay time of residual voltage. Improves mixing of residual signal with low noise amplifier. (6pp Dwg.No.3/4)

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